

## ATSDR Record of Activity

UID #: N/A Date: 25 May 2005 Time: 14:00

Site Name: McCoy Field School

City: New Bedford County: Bristol State: MA

CERCLIS # Cost Recovery # 1#MA Region: 1

### Site Status:

Activities: Data Reviewed, Written Response

Requestor and Affiliation: Kimberly Tisa, PCB Coordinator, Office of Ecosystem Protection, US EPA-NE

Address: 1 Congress St Ste 1100 (CPT)

City: Boston State: MA Zip Code: 02114

### Contacts and Affiliation

(ATSDR) William D. Sweet

### Program Areas: Health Consultation

Narrative Summary: In a letter dated 10 May 2005, EPA-NE requested that ATSDR review the proposed cleanup plan for issues related to public health during occupancy of this building, a middle school. Issues of worker and public protection during construction were only briefly mentioned, and ATSDR assumes that another document covers these issues. The document reviewed was *Risk-Based Cleanup Request, Revision I, Volume I, School Site at McCoy Field, New Bedford, Massachusetts*. Volume II, consisting of drawings and figures to support Volume I, was also used in this review.

### Action Required/Conclusions/Recommendations/Info Provided:

Presently, the site consists of fill material composed of relocated dump-and-burn residue from before the early 1970s and polychlorinated biphenyls (PCBs) contaminated debris. A middle school is to be built on the site. To date, utility corridors have been or will be constructed with clean fill material with a warning barrier between clean and contaminated fill.

Environmental Data: Arsenic and barium maximum concentrations exceeded the Massachusetts MCP Method 1 S-3 soil standards but their average concentrations did not. The arithmetic average and maximum concentrations of lead exceeded the Method 1 S-3 soil standard. Numerous semi-volatile organic compounds were detected, most of

them petroleum-related or phthalate esters. Six polycyclic aromatic hydrocarbons (PAHs) exceeded their respective Method 1 S-3 soil standards. Polychlorinated biphenyls were detected in roughly  $\frac{3}{4}$  of the samples, typically reported as Arochlor 1254. The arithmetic mean of detections (non-detects ignored) of 77 mg/kg was skewed high by the anomalous maximum of 46,500 mg/kg. The median concentration was 8 mg/kg. Chlorinated dibenzo-p-dioxins and -furans, primarily hepta- and octa-substituted, were found but the total toxicity equivalent was below the MCP upper concentration limit. Eleven of 12 volatile organic compounds (VOCs) were petroleum-related, and all individual compounds were below their respective Method 1 S-3 soil standards.

**Public Health Implications:** For the building footprint, pile caps will be constructed and PCB-contaminated waste will be installed to 6 inches below the top of the pile cap, geotextile installed, and clean granular fill placed to the top of the cap. This work will be conducted by hazardous waste operations-trained workers. On top of this layer, grade beams will be installed by non-hazardous waste operations-trained workers. Properly trained workers will then add PCB-contaminated waste to 2 feet below the base of the building slab. Building up from this surface to the bottom of the structural slab will be geotextile, 6-8 inches of clean granular fill, geotextile, a gas venting system, compacted fill, a 2 inch mud-slab, rigid insulation, a protection board, geotextile, a gas and vapor membrane, and geotextile. Drawings of construction at junctions between elements and penetrations indicate care to maintain barrier integrity. On page 18, the venting system is stated to be passive, but on Figure 4, Typical 5, the venting system is stated to be reduced pressure, which implies an active system. This discordance should be resolved in the next version. This venting system will empty to the roof. Placement of HVAC air intakes and these vents should be carefully considered to prevent exhaust from the vents entering the building air. ATSDR notes that building air intakes should be placed well above ground level to minimize risk from accidental, prank, or criminal or terrorist releases of hazardous substances in the vicinity. Subject to the above considerations, ATSDR believes the proposal is protective of public health of adult and child occupants of the school.

In landscaped areas, separation geotextile will be placed atop the contaminated fill, then a 1 foot layer of clean granular material, a warning barrier, an additional 2 feet of granular material, and a minimum of 18 inches of loam. ATSDR considers this adequately protective of the public health of student, teacher, and other school workers.

In paved areas, the contaminated fill will be covered by separation geotextile, 15 inches of granular material, 6 inches of crushed stone, and 3 or more inches of paving. ATSDR considers this adequately protective of the public health student, teacher, and other school workers.

An Activity and Use Limitation will be placed on the property to protect from penetration of the contaminated material without proper legal oversight. ATSDR considers this adequate protection of public health for sizable projects. Page 5 states that awareness training of maintenance personnel will be conducted by the architectural and

engineering firm. However, ATSDR is concerned about continued training, to protect workers from the contaminated soil during minor work such as replacement of plantings. ATSDR suggests that the school administration writes and implements periodic, e.g., annual, training of maintenance staff in these use limitations on the property.

Attachment F is an Environmental Monitoring Plan for indoor air and groundwater.

Indoor air is to be sampled two weeks before the start of the school year, in August, a time of maximal temperatures and likely lower than normal air exchanges, and during the December school vacation, a time of lower than normal air exchanges, heating system in use, and frozen ground surface perhaps increasing infiltration of soil vapors into the building. VOCs by EPA Method TO-14A and PCBs by NIOSH method 5503 are proposed for measurement. The VOC and PCB samples will be compared to at least one outdoor air sample – “typically at a roof top location.” Chemicals of Concern (COCs) on site include metals which are not volatile; PAHs and PCBs which are of low volatility; and low part per billion concentrations of volatile petroleum hydrocarbons. It is not clear to ATSDR from this document why PCBs are to be sampled, and PAHs, of similar volatility and perhaps more precisely defined adverse health effects, are not. The rationale for this decision should perhaps be presented. ATSDR suggests consideration of the addition of a monitoring plan for the SVOCs. No criteria for termination of the sampling are presented, so it must be assumed that sampling is to continue for the life of the building. ATSDR suggests consideration of establishing criteria for discontinuation or change in frequency of sampling.

#### The VOCs

Because VOCs were not found at concentrations of concern in the soil gas within the contaminated layer, the rationale for their measurement must be found elsewhere: it is not part of the purview of this document. VOCs are a large class of chemicals, many of which are in common use, e.g., dry erase markers, cleaning products, artist materials, and building material and maintenance products. Therefore, it should be expected that VOCs will be found indoors in every sampling round. Because of their ubiquity, routine determination of VOCs in indoor air of schools and many other types of buildings is not typical. ATSDR suggests consideration of the implications. If VOCs are not associated with the contaminated soils of this site but sampling is necessary to protect human health, why aren't all schools – and all public buildings for that matter – routinely sampled?

Indoor air sampling for VOCs will be compared to Massachusetts Department of Environmental Protection's Threshold Effects Exposure Limits (TELs) and Allowable Ambient Limits (AALs). The TELs are for 24-hour exposures, and the AALs are for annual average exposures. If the sample results exceed one of these values, or exceeds the outdoor concentration by 50%, then another sample will be taken. If the additional sample confirms the concentration are above the TELs/AAL or 50% above outdoor air, then a corrective action plan will be submitted to school officials, the MA DEP, and the EPA within 30 days. ATSDR considers this protocol to be protective of public health.

Indoor air sampling for PCBs will be compared to the excess lifetime cancer risk of  $1 \times 10^{-6}$  value of  $0.12 \mu\text{g}/\text{m}^3$ . Any detection above that value will prompt additional sampling, and if the additional sample confirms the elevated PCB concentration, then a corrective action plan will be submitted to school officials, the MA DEP, and the EPA within 30 days. ATSDR considers this protocol to be protective of public health.

#### Lead

Lead was identified as a contaminant of concern for this site. The greatest concern for lead is based on its effects on the nervous system, particularly in young children.

ATSDR is concerned that there is no strategy to ensure that lead from the site has not migrated into the school building during construction. ATSDR suggests consideration of sampling for lead in dust before the school is occupied, to assure that contaminated soil has not entered the building during construction. ATSDR considers the planned barriers between contaminated soils and exposure points to be protective of public health.

ATSDR considers the groundwater monitoring plan adequately protective of public health.

#### Conclusion(s):

Subject to the suggestions stated above, ATSDR considers this plan to protect public health from the contaminants on-site.

#### Recommendations:

1. ATSDR suggests consideration of sampling for PAHs in air, along with PCBs.
2. ATSDR suggests consideration of the possible ramifications of sampling the air for VOCs.
3. ATSDR recommends consideration of criteria for reducing or terminating the air sampling protocol, on the basis of a period of detections below the applicable standard.
4. ATSDR recommends a written plan for the permanent, regular training of the building and grounds staff in the provisions of the Notice of Activity and Use. For a specific provision, ATSDR recommends linking Attachments A and E. Specifically, link maintenance of paving, Attachment A, Notice of Activity and Use Limitation, 1. vii and Attachment A, Exhibit A, page 2, item (vii) with Attachment F, Long-Term Cap Monitoring Plan, page 2, A so that repair of pavement also looks for ultimate causes. Specifically, during pavement repair workers should look for subsidence of the contaminated or overlying clean fill that could disrupt the integrity of the barriers.

#### Public Health Action Plan:

The Public Health Action Plan for the McCoy Field School site contains a description of actions completed, and to be taken by ATSDR and EPA. The purpose of the Public

Health Action Plan is to ensure that this Health Consultation not only identifies public health hazards, but also provides a plan of action to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. The public health actions completed, and planned are as follows:

**Actions Completed:**

- Soil and soil gas samples were collected and analyzed.
- Architectural plans were drawn to eliminate a completed pathway from contaminated soil to building occupants.

**Actions Planned:**

- EPA will consider these issues in its comments to the document.

**References:**

1. Risk-Based Cleanup Request, Revision I, Volume I, School Site at McCoy Field, New Bedford, Massachusetts, 3 May 2005, BETA Group, Inc.
2. Risk-Based Cleanup Request, Revision I, Volume II, School Site at McCoy Field, New Bedford, Massachusetts, 3 May 2005, BETA Group, Inc.

Preparers of Report: William D. Sweet, Ph.D., DABT and Gary D. Perlman, MPH, RS, EMT-B, Lt. Commander, U.S. Public Health Service

ATSDR Concurrence:

Peter J. Kowalski, MPH, CIH  
Lead, Health Consultation Team  
Exposure Investigation and Consultation Branch  
Division of Health Assessment and Consultation  
Agency for Toxic Substances and Disease Registry

Signature:\_\_\_\_\_ Date:\_\_\_\_\_

Tina Forrester, Ph.D.  
Director  
Division of Regional Operations  
Agency for Toxic Substances and Disease Registry

Signature:\_\_\_\_\_ Date:\_\_\_\_\_